

**ABSTRACT OF THE DISCLOSURE**

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Nucleic acid sequences coding for a protein having  $\beta,\beta$ -carotene 15,15'-  
dioxygenase activity and their uses in diagnostics, the synthesis of vitamin A and methods  
for the introduction of the  $\beta,\beta$ -carotene 15,15'-dioxygenase cDNA into host cells are  
disclosed.

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